Tech Info Library

Power Macintosh: PowerPC 604 Rendering Performance (9/95)

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TOPIC ---

I hear that some high end rendering applications run slowly on the new PowerPC
604-based Power Macintosh computers. Is this a bug?

DISCUSSION --

No. The PowerPC 604 RISC microprocessor and the new Power Macintosh computers
with the Peripheral Component Interconnect (PCI) bus are, on the whole,
significantly faster than the PowerPC 601 and original Power Macintosh
computers. However, some types of operations — intensive rendering is an example
— stress memory access times rather than microprocessor or bus speed.

The memory speed the new Power Macintosh computers is roughly the same as the
original Power Macintosh computers. The decision to use similar speed memory was
made to ensure easy access to DRAM components. The use of DIMMs and interleaving
allows the new memory architecture to be roughly 20-30% faster than the original
Power Macintosh computers. In rendering applications that saturate the memory
bandwidth, you see a performance increase roughly equivalent to the increase in
memory speed. At bottom, even though the PowerPC 604 can render up to two times
faster than a Power PowerPC 601, memory speed poses a bottleneck.

The new Power Macintosh computers based on the PowerPC 604 RISC microprocessor
and PCI bus are significantly faster than the original Power Macintosh computers
when performing most tasks. When performing other tasks in rendering
applications, such as modeling, screen redraw, and animation playback, the Power
Macintosh 8500 and 9500 can be as much as two times faster than the Power
Macintosh 8100.

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